



MARC student Chrystal Loya studies tissue cells under a microscope.

The Secret to Their Success

For almost three decades, a St. Mary's program has guided minority students toward high-level research careers

by Gina Farrell, Director of Media Relations

*F*or almost 30 years, a federally funded program with a long name and lofty goals has been quietly helping talented St. Mary's University students find their purpose in research careers toward which they might not otherwise have gravitated. It's called the Minority Access to Research Careers Undergraduate Student Training in Academic Research program, and for current students like Chrystal Loya and Perla Rodriguez, and alumni like Vincent Aguirre, M.D., Ph.D., it has been the secret to their success.

"The MARC program served an unbelievably important purpose in my life. It is a wonderful opportunity for the students of St. Mary's and other similar schools to be exposed to the wonders of science—something they might not otherwise be exposed to," said Aguirre, a San Antonio native who earned a combined M.D. and Ph.D. at Harvard University after graduating from St. Mary's in 1992.

Timothy Raabe, Ph.D., himself a biomedical researcher and professor of biology, directs the St. Mary's program, known in short as MARC U-STAR. St. Mary's MARC program is supported with funding from the National Institute of General Medical Sciences, within the National Institutes of Health. For the past 27 years, it has produced dozens of St. Mary's students who go on to earn Ph.D.s in areas such as biology, chemistry, biochemistry, physics, and engineering science.

The federal program was started to encourage minorities to consider educational trajectories toward doctoral science research. Raabe noted that because minorities have traditionally been underrepresented at research institutions, this program looks to help reduce that gap. In the program, faculty works with the students to offer research opportunities, specialized courses, seminars and workshops. While the pre-MARC program targets first-

and second-year students, the regular MARC program is for junior- and senior-level undergraduates.

CIMADEVILLA'S VISION

The late Jose Miguel Cimadevilla, Ph.D., a long-time St. Mary's professor, brought MARC to campus in 1983 (and led the program until his death in 2005). Today Raabe continues the work Cimadevilla began, estimating that about half of MARC students will earn doctoral degrees—much greater than the percentage of the regular student population that earns a doctorate.

The program works by making early contact with students who might fit the bill for MARC and whetting their appetite for research. Admission to MARC is competitive, with only six slots (three for juniors and three for seniors), making the pre-MARC training program valuable. It gives interested students a preview of what a research career would involve and a leg up in applying for the six coveted spots.

Current biology major Chrystal Loya believes her experience in the pre-MARC program made the difference for her. Loya had big dreams long before she ever heard of the MARC program, and she came to St. Mary's intending to complete her undergraduate degree and then move on to medical school.

"My freshman year, I had the mindset of becoming a doctor. But I also knew that I had a passion for biology and that I found the mechanisms in molecular biology fascinating," Loya said. After hearing Raabe talk about summer research opportunities as a pre-MARC student, she was hooked. "The idea of working in a lab for the summer seemed interesting, but after completing the summer research for my first time, my interest grew exponentially."

Like Loya, chemistry major Perla Rodriguez came to St. Mary's with a plan for medical school. And like Loya,

her plans changed. Through MARC, Rodriguez has worked in five different labs, including at the Southwest Foundation for Biomedical Research and the University of Texas Health Sciences Center at San Antonio. "I learned science in the lab that I know wouldn't come across in textbooks," she said. "The MARC program is a great opportunity for me to get ahead of the game. I took advantage of working in different labs to figure out, more or less, what I want to research in grad school."

Graduating this May, Rodriguez plans to work toward a Ph.D. in biomedical science, and has applied to six graduate schools with two interviews already scheduled.

PREPARING STUDENTS FOR THE FUTURE

The competitive nature of the MARC program is built not only on the unique undergraduate research opportunities, but also on the financial benefits. Participants receive a significant stipend as well as \$15,000 a year in tuition, to minimize students' financial worries so that they can focus on research.

When Loya graduates, she plans to pursue a doctorate, likely in biochemistry, and then one day become a biology professor herself. In the meantime, Raabe is guiding Loya and the other MARC students on a path that will lead to more educational and professional success. Reflecting on how Raabe's guidance has benefited her, Loya said, "He gives helpful advice, but allows me to make my own decisions. The MARC program means to me education, guidance, experience and opportunity."

Loya was first attracted to St. Mary's because of the University's success in preparing students for medical school. Historically more than half of graduates who apply are admitted to medical and dental schools, well above the national